

Please reply to
Genetics Building

April 12, 1958

Dr. Boris Rotman
Instituto de Quimica Fisiologica
Santiago, Chile

Dear Boris:

The last couple of weeks have been the culmination of feverish activity; now that the symposium we had here on Genetics in Medical Research is over we can look forward to some repose and to return to our usual calm pace.

I saw Hoecker at the Gatlinburg meeting, and was glad to have your regards, which I warmly return.

As you know, we and Kalckar have been engaged in a rather distant collaboration on the enzymology and genetics of the various galactose mutants of *E. coli*. With the help of the lambda-linked transduction, we have what is probably the most detailed genetic information on these genes that can be obtained anywhere. So far, Esther (and previously Larry Morse) has accumulated hundreds of mutants which are still being analysed. You are probably familiar with the already published results that many of the mutants fall into two groups, which we will now call K and T. The K mutants (Gal_2 ; Gal_3) show a simple defect in galactokinase; the T mutants (Gal_1 ; Gal_4 etc.) are deficient in uridine-diphosphohexose transferase. Further more the T and the K group constitute each a simple cistron when tested in heterogenotes. So far so good. More recently Esther ~~was~~ characterized another mutant Gal_9 as giving position effects with both the K and the T cistrons; furthermore, this is the first isolate which is deficient in the third of the galactose enzymes, the uridine diphosphohexose epimerase; it is also weak or deficient in the other two enzymes! Kalckar is now pursuing the interesting question whether Gal_9 when grown in the absence of galactose is entirely devoid of this sugar in its cell wall structure.

Now, Kalckar visited Madison during the symposium and we had a chance to review the strategy for a more coordinated attack on this attractive problem, which we feel we must do. Herman has of course many other commitments and, since Kiyoshi Kurahashi left his group at the NIH, he has been working evenings as best he can on these questions. You may not know that he has accepted a rather exciting position in the Biology Department (McCollum-Pratt Institute) at Johns Hopkins, effective this summer, and this should improve the opportunities for collaboration.

It turns out that Kalckar may be able to sponsor a suitable position in his group at Johns Hopkins. Of course, it immediately occurred to me that you would be the most plausible person to try to interest in this program, and Kalckar's immediate response was quite encouraging. From what I could learn of it, the position should be an excellent opportunity, so on several counts I hope it might be attractive to you. In view of your plans for visiting the US this fall, it looked as if it might be practical to work something out. I don't have to tell you how delighted we would be to be able to renew our scientific interaction.

If, as I hope, you might be interested in this possibility, I suggest→ you write directly to Kalckar (c/o NIH, Bethesda 14 Md.) mentioning this letter and including a biography.

Of course the detailed planning will have to wait until your participation. However, the Gal system is on the verge of being ready for such approaches as the isolation of the separate enzymes, immunological characterization of mutant products, the effect of transduced fragments of DNA in initiating enzyme synthesis and so forth. For this reason I believe it represents an unusual challenge for an approach which has some realistic prospects of answering some of the most fundamental questions in gene-enzyme relationships/

With all best regards,

Yours, as ever,

Joshua Lederberg